

بنك أسئلة

الصف
الأول
الإعدادي
٢٠٢٥

التميز

أ/ محمود سعيد

ELMotamyez Questions Bank

Science

Final Revision

BY

Mrs . Salma Ahmed

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نسخة
مجانية

ملحق الإجابات
بالداخل



El.Motamyez.School

يمكنكم الحصول على المذكرات والاختبارات من خلال مسح رمز ال QR Code
أو من خلال صفحة "التميز - أ/ محمود سعيد".
يرجى مراعاة حقوق صاحب المحتوى عند النشر.



Second Term Questions Bank

التميز

Question 01

Complete the following sentences:

- 1 The reaction between acids and alkalis produces and
- 2 is formed from the combination of an alkaline cation with an anion
- 3 Salt is formed by the union of a metallic elemental ion with except for the hydroxide group.
- 4 The naming of a salt starts with the name and ends with the cation name
- 5 Copper sulfate salt is in color, while salt is white.
- 6 chloride dissolves in water, while chloride is sparingly soluble in water.
- 7 Sodium nitrate salt is composed of anion and cation.
- 8 salt is formed by the union of the calcium cation with the sulfate anion.
- 9 The salinity of the sea is about times that of the Red Sea
- 10 The molecular formula of bases that contain a cation Ca^{+2}
- 11 The total charge of molecules of any compound equals
- 12 The stomach secretes acid that helps in
- 13 All metals are solids except for which is a liquid.
- 14 All non-metal are solid materials such as, gaseous materials such as and the only liquid is
- 15 The atoms of solid metals are arranged in a structure known as



- 16 The metallic bond is formed due to the attraction between positiveof metal and the cloud of valence negativesurrounding it
- 17 The bronze alloy is composed ofat 5% andat 95%
- 18 The bronze alloy is used in manufacturingand
- 19 The bronze alloy is characterized by being morethan copper andto rust
- 20 Each stage in which energy is transferred in the food chain is called
- 21 Carnivorous animals such asandare characterized by having sharp canines totheir prey.
- 22 Omnivorous animals such asandfeed on both meat & plants
- 23 Hyenas and vultures are considered, as they feed on the remains of dead organisms.
- 24 The molecular formula of the carbonate group iswhile the molecular formula of the sulphate group is
- 25 Oxygenated acids are those that containelement, such asand
- 26 Lemon and ketchup are consideredsubstances, while toothpaste and baking soda are consideredsubstances
- 27 When hydrochloric acid dissolves in water, it producesionion
- 28 When magnesium hydroxide dissolves in water, it formsion andion.
- 29 Acids react with alkalis to formand
- 30 Nitric acid is considered fromacids, while nitrous acid and sulfurous acid are considered fromacids.
- 31 Metals burn in the presence of oxygen gas forming, and most of them are known asoxides.
- 32 Non-metals burn in the presence of oxygen gas forming, and most of them are known asoxides.
- 33 Distilled water has a neutral effect and does not change the color of litmus paper due to the equal number ofions with ions



- 34 There are many indicators, such as litmus paper and
- 35 The pH value of acids isthan 7, while inis greater than 7
- 36is the measuring unit of distance and displacement.
- 37andare the measuring units of speed.
- 38 Factors affecting the kinetic energy of the objectand
- 39 The measuring unit of kinetic energy is.....and is equal to
- 40 Kinetic energy of the object =
- 41 Kinetic energy isproportional to mass and
- 42 The more the mass of the object, thethe speed when the kinetic energy is constant
- 43 If the speed of the body increases into three times, its kinetic energy increases into times of its value.
- 44is the measuring unit of work while newton is the measuring unit of
- 45= Force × Displacement
- 46 Factors affecting potential energy areand
- 47is the measuring unit of weight
- 48 Five kilometers =meters, while three kilojoules =joules
- 49 The ecosystem consists ofand
- 50 The rabbit and the horse are consideredbecause they havefor cutting plants.
- 51 Non-living components such asand
- 52 The ecosystem consists of several levels: the individual,, and



- 53is considered the basic unit in the classification of living organisms.
- 54is the individual that benefits from commensalism.
- 55is the one that is neither benefited nor harmed in commensalism relationship.
- 56 The pH value of a table salt solution (sodium chloride) is
- 57 The pH value is accurately measured by using
- 58 From neutral gases on litmus paper are and
- 59 The dissolution of sulphur trioxide (SO_3) in water forms
- 60 Dissolving ofin water forms magnesium hydroxide.
- 61 The combustion of fossil fuels produces oxides of and.....
- 62 Non-oxygenated acids don't containelement, such asand
- 63 Lactic acid provides the muscles withduring lacking of oxygen, and its accumulation in the muscles causes
- 64 Bromine is a liquid, while mercury is a liquid
- 65 Limestone is aRock, while marble is aRock
- 66 A change in the pH value of a solution from 7 to 12 means it wasand become
- 67 The freezing of water in rock crackes is one of the causes of theWeathering, while spherical weathering is a form of theweathering
- 68 The acid that contains ClO_2^- group has the molecular formulaand the alkali that contains NH_4^+ group has the molecular formula.....
- 69 The total length of any path taken by the object during its moving from the starting point to the end point is known asand its measuring unit is



- 70is the process of breaking and fragmenting rocks, whileis the transport of sediments from one location and their sedimentation in another.
- 71 Large plants represent the organic origin offuel, while marine microorganisms represent the organic origin offuel.
- 72 Water exists in three states:, solid and
- 73 Water changes from the liquid state to thestate when it gains
- 74 Water changes from the gaseous state to the liquid state when it loses heat, in a process known as
- 75 Sources of water vapor in nature include, and
- 76 Thewater is stored beneath the Earth's surface.
- 77 The basic stages of the water cycle are, condensation,, surface runoff and
- 78 Each gene consists of smaller units called
- 79 Nucleotides exist in the form of.....twisted around each other, and the two strands are called
- 80 Each chromosome carries thousands or millions ofwhich vary in number from one chromosome to another in the cells of the same individual
- 81 The mixture used in separating strawberry chromosome consists ofandwith.....
- 82is considered the founder of genetics, and he conducted his experiments on theplant
- 83 The scientistsandarrived at a working hypothesis for expressing genetic traits and called it
- 84 Genes produce, which is responsible for a chemical reaction that leads to the formation of, showing the genetic trait



- 85 Spinal curvature is a result ofmutations, whileare a result of lethal mutations
- 86 The production of seedless lemons is a result ofmutations

Question 02

What is meant by

- 1 Atomic group
.....
- 2 Acidic oxides
.....
- 3 Indicators
.....
- 4 Distance
.....
- 5 Speed
.....
- 6 Energy
.....
- 7 Potential energy
.....
- 8 The independent variable
.....
- 9 The dependent variable
.....
- 10 Universal indicator
.....
- 11 Salts
.....
- 12 PH values
.....



13 Basic oxides

.....

14 Acid rain

.....

15 Acids

.....

16 Alkalis

.....

17 Movement path

.....

18 Displacement

.....

19 Work

.....

20 Potential energy

.....

21 The dependent variable

.....

22 The individual

.....

23 Bio community

.....

24 Competition

.....

25 Commensalism

.....

26 Food chain

.....

27 Ecosystem

.....



28 Predation

.....

29 Mutualism

.....

30 Food chain

.....

31 Biological control

.....

32 Energy pyramid

.....

33 Decomposers

.....

34 Food webs

.....

35 Controlled variables

.....

36 Kinetic energy

.....

37 Metallic bond

.....

38 Alloys

.....

39 Recycling

.....

40 Energy

.....

41 Rocks

.....

42 Transpiration process

.....



43 sediments
.....

44 Evaporation
.....

45 Boiling
.....

46 Condensation
.....

47 The water cycle
.....

48 Transpiration process
.....

49 The distance travelled by an object (50 meters)
.....

50 Displacement of a body (30 meters)
.....

51 Body speed (120 km/h)
.....

52 The kinetic energy of an object is 250 joules
.....

53 Potential energy of a body (60 J)
.....

54 Energy stored in the body as a result of work done (0.5 KJ)
.....

55 The mechanical energy of a moving object is 1000J
.....

56 Lemon is an acidic substance
.....



- 57 Nickel chloride is a salt
.....
- 58 Mutation
.....
- 59 Spontaneous mutation
.....
- 60 Induced mutation
.....

Question 03

Choose the correct answer

- 1 The electron configuration of the following elements ends with less than 4 electrons, except that of
- a hydrogen b sodium c phosphorus d magnesium
- 2 The object whose mass is 2 kg and its speed is 3 m/s has a kinetic energy equal
- a 6 J b 9 J c 6 KJ d 9 KJ
- 3 Bromine and mercury are similar in the
- a color b physical state c heat conductivity d boiling point
- 4 What is the common property in both copper and iron
- a color b Density c Melting point d Electrical conductivity
- 5 Bromine element is similar to graphite in the
- a Color b Physical state c Type of element d Electrical conductivity
- 6 If the speed of an object decreases to half while its mass remains constant, then its kinetic energy
- a decreases to half b decreases to a quarter c increases to 4 times d is doubled
- 7 All the following are properties of sodium element, except
- a a metal b has metallic luster c bad electrical conductor d formable
- 8 Which of the following is the correct arrangement of the hardness of sodium $_{11}\text{Na}$, magnesium $_{12}\text{Mg}$ and aluminum $_{13}\text{Al}$?
- a $\text{Na} > \text{Mg} > \text{Al}$ b $\text{Al} > \text{Mg} > \text{Na}$ c $\text{Mg} > \text{Na} > \text{Al}$ d $\text{Al} > \text{Na} > \text{Mg}$





- 9 Element (X) its boiling point is 2807°C and its melting point is 1064°C Which of the following is a property of element (X)?
 (a) Bad electrical conductor (b) Brittle (c) Ductile (d) Opaque
- 10 Which of the following questions helps in the classification of some elements to metals and nonmetals?
 (a) Is it solid? (b) Is it liquid? (c) Is it coloured? (d) Is it brittle?
- 11 What is the common property of both sodium and copper?
 (a) Colour (b) Density (c) Melting point (d) Physical state
- 12 If the anion which composes the acid HClO is called hypochlorite, then the acid is called
- (a) hypochlorous acid (b) hypochloric acid (c) perchloric acid (d) chlorous acid
- 13 What is the ion whose percentage in the solution increases when an acidic oxide dissolves in water?
 (a) H^{+} (b) OH^{-} (c) Cl^{-} (d) Na^{+}
- 14 On dissolving calcium oxide in water, and placing two litmus strips in the solution, the colour of one of them changes into
- (a) red (b) purple (c) blue (d) yellow
- 15 All the following from ions that form salts, except
- (a) OH^{-} (b) Cl^{-} (c) NH_4^{+} (d) NO_3^{-}
- 16 In a food chain that includes insect, fish, plant and swan. Which of these living organisms is considered as a predator and a prey at the same time?
 (a) The insect (b) The fish (c) The plant (d) The swan
- 17 Millions of nucleotides come together directly, forming
- (a) chromosomes (b) chromatids (c) genes (d) histones
- 18 What are the two processes that occur at any temperature?
 (a) Melting and boiling (b) Evaporation and condensation (c) Melting and evaporation (d) Evaporation and boiling
- 19 The rock cycle is a model that illustrates
- (a) the unchanging of rocks (b) how magma is formed (c) how sediments are formed (d) transformations of rocks



- 20** The molecular formula of sulphuric acid is
- a** H_2S **b** H_2SO_3 **c** H_3SO_3 **d** H_2SO_4
- 21** Human liver cells contain chromosomes
- a** 20 **b** 23 **c** 32 **d** 46
- 22** The centromere connects between
- a** two chromosomes **b** two chromatids **c** two genes **d** two nucleotides
- 23** The carbonate group differs from the sulphite group in
- a** charge **b** number of atoms **c** number of elements **d** type of elements
- 24** The nutritional relationship between bear and fish is considered a
- a** mutualism **b** competition **c** commensalism **d** predation
- 25** What is the acid that its accumulation in the muscles causes the muscle cramps?
- a** Hydrochloric acid **b** Lactic acid **c** Acetic acid **d** Chlorous acid
- 26** The molecular formula of sulphurous acid is
- a** H_2SO_3 **b** H_2S **c** H_2SO_4 **d** HSO_3
- 27** Among the basic gases
- a** CO_2 **b** HCL **c** NH_3 **d** CH_4
- 28** What is the possible PH meter reading of dilute sodium hydroxide solution ?
- a** 2 **b** 5 **c** 7 **d** 12
- 29** The nucleic acid DNA is wrapped around a type of protein known as
- a** hormones **b** genes **c** histones **d** chromosomes
- 30** All the following physical quantities are measured in joules, except for
- a** potential energy **b** force **c** work **d** kinetic energy
- 31** The conversion of gas into liquid represents the Process
- a** boiling **b** condensation **c** evaporation **d** melting





- 32** What is the process that plants do in the water cycle?
 (a) photosynthesis (b) evaporation (c) transpiration (d) precipitation
- 33** The smallest building unit of DNA is
 (a) the gene (b) the chromosome (c) the nucleotide (d) the histone
- 34** The spider weaving its web is considered
 (a) a spontaneous mutation (b) an acquired trait (c) a genetic trait (d) an instinctive behaviour
- 35** The central point at which the two chromatids of the chromosome are connected is called
 (a) the nucleotide (b) the centrosome (c) the gene (d) the centromere
- 36** Which of the following rocks is formed from the lithification of sediments?
 (a) Quartzite (b) Pumice (c) Sandstone (d) Marble
- 37** Histones are
 (a) enzymes (b) proteins (c) fats (d) carbohydrates
- 38** The genetic material that found in cells and determine hereditary traits of the living organism called
 (a) PNA (b) NAD (c) AND (d) DNA
- 39** Which of the following rocks is used after being crushed to make casts
 (a) Gabbro (b) Limestone (c) Sandstone (d) Pumice
- 40** Genes control the appearance of hereditary traits in the living organism by producing
 (a) hormones (b) enzymes (c) chromosomes (d) vitamins

Question 04

Give one example of each of the following

- 1** Positive atomic group ()
- 2** Gas that turns blue litmus paper into red ()
- 3** Gas turns red litmus paper into blue ()
- 4** White salts ()
- 5** Coloured salts ()
- 6** Salts dissolve in water ()



- 7 Salts that are sparingly soluble in water ()
- 8 A gas that has a neutral effect on litmus paper ()
- 9 Chemical indicator that measures pH ()
- 10 Non-oxygenated acid that forms an anion in a liquid state . ()
- 11 Acid secreted by the stomach ()
- 12 Oxygenated acid carries three negative charges. ()
- 13 Acid secreted by muscles. ()
- 14 Weathering and erosion processes together. ()

Question 05

Cross out the odd word, then write the relation between the remaining words

- 1 Gold - Silver - Bromine – Mercury
.....
- 2 Phosphorus - Bromine - Mercury – Sulphur
.....
- 3 Graphite - Bromine - Phosphorus – Sulphur
.....
- 4 Iodine - Sulfur - Carbon – Hydrogen
.....
- 5 Bronze - Chlorine - Copper – Tin
.....
- 6 Universal indicator strips – litmus paper - voltameter – pH Meter
.....
- 7 $N_2 - H_2O - H_2 - HCl$
.....



- 8 $\text{HNO}_3 - \text{H}_2\text{SO}_4 - \text{H}_2\text{O} - \text{HCl}$
.....
- 9 Eggs – tomato – grapes – lemon
.....
- 10 Sodium chloride - Nickel chloride - Silver Chloride - Copper Sulphate
.....
- 11 $\text{H}_2\text{O} - \text{NaHCO}_3 - \text{CuSO}_4 - \text{AgNO}_3$
.....
- 12 Sodium chloride - Calcium chloride - Magnesium chloride - Silver nitrate
.....

Question 06

Give reason for each of the following

- 1 Calcium ($_{20}\text{Ca}$) is a metal while Chlorine ($_{17}\text{Cl}$) is a non-metal.
.....
- 2 Carbon is used in the manufacture of dry cells, although it is a non-metal.
.....
- 3 Acids turn blue litmus paper into red.
.....
- 4 Alkalis turn red litmus paper into blue.
.....
- 5 Litmus paper doesn't affect distilled water.
.....
- 6 Nitric acid turns blue litmus paper into red.
.....
- 7 Calcium hydroxide turns red litmus paper into blue.
.....





- 8 The work done by the car is less than the work done by the truck, even though their speeds are equal.
.....
- 9 The kinetic energy of the car decreases when the driver presses the car's brakes.
.....
- 10 Increasing the work required to stop a moving car at a high speed.
.....
- 11 Milk of Magnesia is used to treat stomach acidity.
.....
- 12 Sodium chloride salt is an ionic compound.
.....
- 13 Magnesium chloride salt consists of one magnesium cation and two chloride anions.
.....
- 14 You can't drown in the Dead Sea water.
.....
- 15 Bronze alloy is used in the manufacture of medals instead of copper.
.....
- 16 The difference of the evaporation process from the boiling process
.....
- 17 The relationship between bees and plant flowers is mutualism
.....
- 18 The electrical conductivity of acetic acid is less than the electric conductivity of hydrochloric acid
.....
- 19 The combustion (Burning) of fuel in a car is accompanied by a conversion of energy
.....



- 20 The curling up of hedgehog when it feels danger is classified as instinctive behaviour
.....
- 21 The sun and gravity together maintain the continuity of the water cycle in nature
.....
- 22 Not all salt solutions are neutral
.....
- 23 The difference in PH values of ammonium chloride from sodium chloride solutions
.....
- 24 The kinetic energy of a truck is greater than the kinetic energy of a car when their speeds are equal
.....
- 25 Hyenas are a scavengers
.....
- 26 The ladybug is used in biological control
.....
- 27 The water cycle in nature is a closed cycle
.....
- 28 The bow and arrow game is an example of energy conversion
.....
- 29 Fresh water consumption must be rationalized
.....
- 30 Water drops form on the outer surface of a cup containing water and ice Cubes
.....
- 31 The sun and gravity maintain the continuity of the water cycle
.....



32 Sea and ocean water are desalinated

.....

Question 07

What happens if

- 1 Knocking on a piece of graphite.
.....
- 2 Increasing the number of valence electrons in metal atoms according to the metallic bond.
.....
- 3 Dissolution of sulphur oxide in rain water
.....
- 4 Mixing molten gold with molten copper.
.....
- 5 Lack of food sources in a balanced ecosystem
.....
- 6 Food shortage for a group of hyenas
.....
- 7 The absence of one of the living organisms present in a balanced ecosystem.
.....
- 8 Increase in the number of primary consumers
.....
Decrease in the number of secondary consumers
- 9
.....
- 10 Placing potassium carbonate solution to water
.....





11

The speed of a moving object increases into the double with constant mass according to its kinetic energy.

.....

12

Mass doubled and velocity halved according to kinetic energy

.....

13

Two cars (1) and (2) move at different speeds and have the same mass according to kinetic energy.

.....

14

The passage of electric current through sulphuric acid and acetic acid according to lighting of the lamp

.....

15

Placing two red and blue litmus paper in a tube of hydrogen gas.

.....

16

Placing two red and blue litmus paper in a tube containing chlorine gas.

.....

17

Placing two red and blue litmus paper in a tube containing carbon dioxide gas.

.....

18

Placing two red and blue litmus paper in a tube containing ammonia gas.

.....

19

Adding calcium hydroxide to acidic soil

.....

20

Reaction of acids with alkalis

.....

21

A person who suffers from lactose intolerance eats milk chocolate

.....

22

Sulphuric acid dissolves in water

.....

Placing a cup of water in a sunny place for several hours

23

.....

Placing pieces of ice in a cup of water

24

.....

When the cloud temperature is below freezing point

25

.....

Question 08

Write the chemical formula for the following compounds:

- 1 Weak acid
- 2 Strong acid
- 3 Strong alkali
- 4 Weak alkali
- 5 Metallic oxide
- 6 Non-metallic oxide
- 7 Hydro sulphuric acid
- 8 Hydrobromic acid
- 9 Hydrochloric acid
- 10 Sulphuric acid
- 11 Sulphurous acid
- 12 Nitric acid
- 13 Nitrous acid
- 14 Potassium hydroxide
- 15 Atomic group consisting of three elements
- 16 Phosphoric acid
- 17 Ammonium hydroxide



Question 09

Write the names of the following chemical compounds and state their type:

- 1 H_2SO_4
- 2 SO_3
- 3 H_2CO_3
- 4 HCl
- 5 $Mg(OH)_2$
- 6 H_2S
- 7 H_3PO_4
- 8 N_2O
- 9 HNO_2
- 10 MgO

Question 10

Answer the following questions

- 1 How do you differentiate between Silver and Phosphorus in terms of Conductivity of electric current
.....
- 2 What is the benefit of Stomach acid
.....
- 3 What is the benefit of Lactic acid
.....
- 4 How to differentiate between Sulphurous acid and sulphuric acid in terms of molecular formula
.....
- 5 What is the benefit of Milk of Magnesia
.....
- 6 What is the benefit of Litmus paper
.....



7 How do you differentiate between nitric acid and nitrous acid?

.....

8 How to differentiate between (CO₂, O₂) gas

.....

9 Mention the type of food relationship between the remora fish that sticks to the shark's body and gets its food remains without affecting it on the shark.

.....

10 Mention the type of food relationship between the falcon that hunts mice.

.....

11 Mention the type of food relationship between the trees in the forest are densely packed together, blocking light from the short trees.

.....

12 Mention the type of food relationship between Spiders hunt insects

.....

13 Write the names of the elements that consists the bronze alloy

.....

14 Mention one use for Calcium carbonate powder

.....

15 Mention one importance for each of Bronze alloy

.....

16 Write the mathematical relation which represents the mechanical energy of a moving object

.....

17 Write the law expressing the relation between Speed and Distance

.....



18 Write the law expressing the relation between Speed and Kinetic energy

.....

19 What is the difference between Acquired traits and genetic traits

.....

20 What is the difference between Hydrogen chloride and hydrochloric acid

.....

21 Mention one importance for each of Genes

.....

22 State the importance of Water

.....

23 State the importance of the sun in the water cycle in nature

.....

24 State the importance of Gravity in the water cycle in nature

.....

Question 11

Problems

1 Calculate the speed of a body that covered a distance of 50 km in two hours.

.....

.....

2 Calculate the time required to cover a distance of 300 meters if the body is moving at a speed of 20 m/s

.....

.....





3 A person pushed an object with a force of (40 Newtons) and it moved in a straight line a distance of (10 meters). Calculate the amount of work done.

.....

4 Calculate the potential energy of a body with a mass of (15 kg) at a height of (150 cm), knowing that the acceleration due to gravity is (10 Newton/kg).

.....

5 Calculate the kinetic energy of a ball with a mass of (20 kg) moving at a speed of (4 m/s).

.....

6 Calculate the kinetic energy of a body weighing 20 Newton moving at a speed of 6 m/s.

.....

7 Calculate the kinetic energy of a body with a mass of (500 g) that covers a distance of 20 meters in (4 seconds).

.....

8 A body moves at a speed of 20 km/h. Calculate the distance travelled after three hours?

.....

9 A body does work of (50 joules) to move a bicycle a distance of 10 meter Calculate the amount of force required to do the work.

.....



- 10 A body with a potential energy of (240 joules) at a height of (12 meters)
Calculate the weight of the body.

.....

.....

- 11 Calculate the height of an object of mass is 6 kg above the ground when
its potential energy is 180 J, knowing that the gravitational field
intensity is 10 N/kg

.....

.....

انتهت الأسئلة مع أطيب الامنيات بالنجاح والتوفيق



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Second Term Questions Bank

التميز

Question 01

Complete the following sentences:

- 1 The reaction between acids and alkalis produces salt and water
- 2 Salt is formed from the combination of an alkaline cation with an acid anion
- 3 Salt is formed by the union of a metallic elemental ion with atomic group except for the hydroxide group.
- 4 The naming of a salt starts with the alkali cation name and ends with the cation acid anion name
- 5 Copper sulfate salt is blue in color, while Sodium Carbonate (Na₂CO₃) salt is white.
- 6 Nickel chloride dissolves in water, while Silver chloride is sparingly soluble in water.
- 7 Sodium nitrate salt is composed of Nitrate anion and Sodium cation.
- 8 Calcium Sulphate (CaSO₄) salt is formed by the union of the calcium cation with the sulfate anion.
- 9 The salinity of the dead sea is about 10 times that of the Red Sea
- 10 The molecular formula of bases that contain a cation Ca⁺² Ca(OH)₂
- 11 The total charge of molecules of any compound equals Zero
- 12 The stomach secretes Hydrochloric acid that helps in food digestion
- 13 All metals are solids except for Mercury which is a liquid.
- 14 All non-metal are solid materials such as Carbon, gaseous materials such as Nitrogen and the only liquid is Bromine
- 15 The atoms of solid metals are arranged in a structure known as Crystal lattice





- 16 The metallic bond is formed due to the attraction between positive **ions** of metal and the cloud of valence negative **electrons** surrounding it
- 17 The bronze alloy is composed of **Tin** at 5% and **Copper** at 95%
- 18 The bronze alloy is used in manufacturing **Medals** and **Jewelry**
- 19 The bronze alloy is characterized by being more **hard** than copper and **resistant** to rust
- 20 Each stage in which energy is transferred in the food chain is called **trophic level**
- 21 Carnivorous animals such as **lion** and **snake** are characterized by having sharp canines to **tear** their prey.
- 22 Omnivorous animals such as **bear** and **mouse** feed on both meat & plants
- 23 Hyenas and vultures are considered **scavengers**, as they feed on the remains of dead organisms.
- 24 The molecular formula of the carbonate group is **CO₃**, while the molecular formula of the sulphate group is **SO₄**
- 25 Oxygenated acids are those that contain **Oxygen** element, such as **H₂SO₄** and **H₂CO₃**
- 26 Lemon and ketchup are considered **acidic** substances, while toothpaste and baking soda are considered **alkaline** substances
- 27 When hydrochloric acid dissolves in water, it produces **positive Hydrogen (H⁺)** ion and **negative chloride (Cl⁻)** ion
- 28 When magnesium hydroxide dissolves in water, it forms **positive magnesium** ion and **negative hydroxide** ion
- 29 Acids react with alkalis to form **salt** and **water**
- 30 Nitric acid is considered from **strong** acids, while nitrous acid and sulfurous acid are considered from **weak** acids.
- 31 Metals burn in the presence of oxygen gas forming **Metal oxides**, and most of them are known as **Basic** oxides.
- 32 Non-metals burn in the presence of oxygen gas forming **Non-metal Oxides**, and most of them are known as **Acidic** oxides.
- 33 Distilled water has a neutral effect and does not change the color of litmus paper due to the equal number of **H⁺** ions with **OH⁻** ions



- 34 There are many indicators, such as litmus paper and **universal indicator**
- 35 The pH value of acids is **less** than 7, while in **bases** is greater than 7
- 36 **meter or kilometer** is the measuring unit of distance and displacement.
- 37 **km/h** and **m/s** are the measuring units of speed.
- 38 Factors affecting the kinetic energy of the object **mass** and **speed**
- 39 The measuring unit of kinetic energy is **Joule** and is equal to **kg x (m/s)²**
- 40 Kinetic energy of the object = $\frac{1}{2} m \times v^2$
- 41 Kinetic energy is **directly** proportional to mass and **square of speed**
- 42 The more the mass of the object, the **slower** the speed when the kinetic energy is constant
- 43 If the speed of the body increases into three times, its kinetic energy increases into **9** times of its value.
- 44 **joule** is the measuring unit of work while newton is the measuring unit of **force**
- 45 **Work** = Force × Displacement
- 46 Factors affecting potential energy are **weight** and **height**
- 47 **Newton** is the measuring unit of weight
- 48 Five kilometers = **5000** meters, while three kilojoules = **3000** joules
- 49 The ecosystem consists of **living organisms** and **non-living organisms**
- 50 The rabbit and the horse are considered **herbivores** because they have **incisors** for cutting plants.
- 51 Non-living components such as **air** and **water**
- 52 The ecosystem consists of several levels: the individual, **biotic population**, and **biological community**



- 53 **Species** is considered the basic unit in the classification of living organisms.
- 54 **Commensal** is the individual that benefits from commensalism.
- 55 **Host** is the one that is neither benefited nor harmed in commensalism relationship.
- 56 The pH value of a table salt solution (sodium chloride) is **7**
- 57 The pH value is accurately measured by using **Ph meter**
- 58 From neutral gases on litmus paper are **H₂** and **O₂**
- 59 The dissolution of sulphur trioxide (SO₃) in water forms **Sulphuric acid H₂SO₄**
- 60 Dissolving of **Magnesium oxide (MgO)** in water forms magnesium hydroxide.
- 61 The combustion of fossil fuels produces oxides of **SO₂** and **NO₂**
- 62 Non-oxygenated acids don't contain **Oxygen** element, such as **Hydrochloric Acid (HCl)** and **Hydrobromic Acid (HBr)**
- 63 Lactic acid provides the muscles with **energy** during lacking of oxygen, and its accumulation in the muscles causes **muscle cramps**
- 64 Bromine is a liquid **nonmetal**, while mercury is a liquid **metal**
- 65 Limestone is a **sedimentary** Rock, while marble is a **metamorphic** Rock
- 66 A change in the pH value of a solution from 7 to 12 means it was **neutral** and become **alkaline**
- 67 The freezing of water in rock crackes is one of the causes of the **mechanical** Weathering, while spherical weathering is a form of the **chemical** weathering
- 68 The acid that contains ClO₂⁻ group has the molecular formula **HClO₂**, and the alkali that contains NH₄⁺ group has the molecular formula **NH₄OH**
- 69 The total length of any path taken by the object during its moving from the starting point to the end point is known as **distance** and its measuring unit is **Meter**
- 70 **weathering** is the process of breaking and fragmenting rocks, while **erosion** is the transport of sediments from one location and their sedimentation in another.



- 71 Large plants represent the organic origin of **coal** fuel, while marine microorganisms represent the organic origin of **petroleum oil** fuel.
- 72 Water exists in three states: **Liquid**, solid and **gas**
- 73 Water changes from the liquid state to the **gas** state when it gains **thermal energy**
- 74 Water changes from the gaseous state to the liquid state when it loses heat, in a process known as **condensation**
- 75 Sources of water vapor in nature include **water bodies**, **transpiration** and **sweat of human & animal**
- 76 The **ground** water is stored beneath the Earth's surface.
- 77 The basic stages of the water cycle are **evaporation**, condensation, **precipitation**, surface runoff and **infiltration**
- 78 Each gene consists of smaller units called **nucleotide**
- 79 Nucleotides exist in the form of **two strands** twisted around each other, and the two strands are called **double helix**
- 80 Each chromosome carries thousands or millions of **genes** which vary in number from one chromosome to another in the cells of the same individual
- 81 The mixture used in separating strawberry chromosome consists of **dishwashing liquid** and **table salt** with **water**
- 82 **Mendel** is considered the founder of genetics, and he conducted his experiments on the **pea** plant
- 83 The scientists **Beadle** and **Tatum** arrived at a working hypothesis for expressing genetic traits and called it **one gene – one enzyme**
- 84 Genes produce **enzyme**, which is responsible for a chemical reaction that leads to the formation of **protein**, showing the genetic trait
- 85 Spinal curvature is a result of **harmful** mutations, while **muscular dystrophy** are a result of lethal mutations
- 86 The production of seedless lemons is a result of **beneficial** mutations



Question 02

What is meant by

- 1 **Atomic group**
An ion composed of more than one atom of more than one element
- 2 **Acidic oxides**
They are non-metal oxides, that dissolve in water forming acids
- 3 **Indicators**
They are chemical substances whose color differs in the acidic medium from the alkaline medium.
- 4 **Distance**
The total lengths of any path taken by the object during its moving from the starting point to the end point
- 5 **Speed**
The distance covered per unit of time
- 6 **Energy**
It is the ability to do work
- 7 **Potential energy**
It is the stored energy in the object, as a result of the work done on it
- 8 **The independent variable**
The variable that is a changed during the experiment
- 9 **The dependent variable**
The variable to be tested which changes in response to changing the independent variable
- 10 **Universal indicator**
It is a chemical indicator that can be used to distinguish between acids and alkalis, acids and each other, or alkalis and each other according to their strength
- 11 **Salts**
Salts are ionic compounds formed due to reaction between alkalis and acids.



12 PH values

Potential of hydrogen is a scale ranging from 0 to 14 that indicates the acidity of basicity of a solution

13 Basic oxides

They are metals oxides, that dissolve in water forming alkalis

14 Acid rain

They are rain resulting from the dissolution of acidic oxides in the water vapor of the atmosphere

15 Acids

Substances that dissolve in water and give positive hydrogen ions H^+

16 Alkalis

Substances that dissolve in water and give negative hydroxide ions OH^-

17 Movement path

A set of points that an object passes through during its motion

18 Displacement

It is the shortest straight path connecting the starting point and the end point in constant direction

19 Work

The amount of energy required to move an object through a certain displacement in the same direction of the force which acts on it

20 Potential energy

It is the stored energy in an object as a result of the work done on it

21 The dependent variable

The variable to be tested which changes in response to changing the independent variable

22 The individual

It is a single living organism that belongs to a specific species.

23 Bio community

It includes the various populations of different species that inhabit the same environment

Competition



- 24** It is a nutritional relationship between two individuals of the same species for a food source that is found in limited quantities which negative impacts their growth or survival
- 25** **Commensalism**
It is a nutritional relationship between two individuals that benefits one organism, known as the commensal, while the other organisms known as a host neither benefits nor is harmed
- 26** **Food chain**
It is the path of energy transfer in the form of food as it moves from one living organisms to another within ecosystem
- 27** **Ecosystem**
It is an area that consists of living organisms and non-living components.
- 28** **Predation**
It is a nutritional relationship between two living organisms, one benefit (predator) and the other harmed (prey)
- 29** **Mutualism**
It is a food relationship between two individuals, both of them benefits from each other without causing harm to either of them
- 30** **Food chain**
It is the path of energy transfer in the form of food as it moves from one living organisms to another within ecosystem
- 31** **Biological control**
It is a food system that uses (utilizes) living organisms to eliminate agriculture pests instead of using pesticides
- 32** **Energy pyramid**
It is a pyramid that represents the flow of energy and the amount of energy at each trophic levels in a food chain.
- 33** **Decomposers**
They are living organisms that obtain their food from the dead bodies.
- 34** **Food webs**
It is the interconnection and overlapping of multiple food chains.
- Controlled variables**



- 35** The variables that are controlled to remain constant throughout the experiment.
- 36** Kinetic energy
It is the gained energy by an object as a result of its motion
- 37** Metallic bond
It is the attraction force between the positive metal ions and the negative valence electron cloud which surrounds them
- 38** Alloys
It is a mixture composed of the metals of two or more metals
- 39** Recycling
It is process of the conversion of the wastes into new usable substance
- 40** Energy
The ability to do work
- 41** Rocks
Solid materials composed of one or several minerals
- 42** Transpiration process
The process through which a plant loses water in form of water vapor
- 43** sediments
Particles of rock fragments transported away from the area where weathering occurred
- 44** Evaporation
Conversion of water from liquid state to gas state by gaining heat, occur at any temperature
- 45** Boiling
Conversion of water from liquid state to gas state by gaining heat, occur at certain temperature (100°C)
- 46** Condensation
Conversion of water from gas state to liquid state by losing heat, occur at any temperature.



- 47** The water cycle
Natural process, that show movement of water between the atmospheric air and earth in closed-multi path cycle
- 48** Transpiration process
Process by which plants lose water in form water vapor
- 49** The distance travelled by an object (50 meters)
This means the total length of any path taken by this object during its moving from starting point to the end point = 50 meters
- 50** Displacement of a body (30 meters)
This means that the length of the shortest straight path connecting between starting and the end point in a constant direction = 30 meters
- 51** Body speed (120 km/h)
This means that this body covers a distance of 120 km in one hour
- 52** The kinetic energy of an object is 250 joules
It is the gained energy by an object as a result of its motion equals 250 joules
- 53** Potential energy of a body (60 J)
This means that the energy stored in the body as a result of work done = 60 J
- 54** Energy stored in the body as a result of work done (0.5 KJ)
This means the potential energy = 0.5KJ
- 55** The mechanical energy of a moving object is 1000J
The summation of the potential and the kinetic energies of this object equals 1000J
- 56** Lemon is an acidic substance
Its PH is less than 7
- 57** Nickel chloride is a salt
It is formed from the combination of a cation of an alkali (Ni^{2+}) with an anion of an acid (Cl^-)
- 58** Mutation
Emergence of new hereditary trait that doesn't appear before, as a result of change in the gene



- 59** Spontaneous mutation
Mutation that occurs naturally, without human intervention
- 60** Induced mutation
Mutation that is made by human intervention

Question 03

Choose the correct answer

- 1** The electron configuration of the following elements ends with less than 4 electrons, except that of
- a hydrogen b sodium c **phosphorus** d magnesium
- 2** The object whose mass is 2 kg and its speed is 3 m/s has a kinetic energy equal
- a 6 J b **9 J** c 6 KJ d 9 KJ
- 3** Bromine and mercury are similar in the
- a **color** b physical state c heat conductivity d boiling point
- 4** What is the common property in both copper and iron
- a color b Density c Melting point d **Electrical conductivity**
- 5** Bromine element is similar to graphite in the
- a Color b Physical state c **Type of element** d Electrical conductivity
- 6** If the speed of an object decreases to half while its mass remains constant, then its kinetic energy
- a decreases to half b **decreases to a quarter** c increases to 4 times d is doubled
- 7** All the following are properties of sodium element, except
- a a metal b has metallic luster c **bad electrical conductor** d formable
- 8** Which of the following is the correct arrangement of the hardness of sodium $_{11}\text{Na}$, magnesium $_{12}\text{Mg}$ and aluminum $_{13}\text{Al}$?
- a $\text{Na} > \text{Mg} > \text{Al}$ b **$\text{Al} > \text{Mg} > \text{Na}$** c $\text{Mg} > \text{Na} > \text{Al}$ d $\text{Al} > \text{Na} > \text{Mg}$
- 9** Element (X) its boiling point is 2807°C and its melting point is 1064°C Which of the following is a property of element (X)?
- a Bad electrical conductor b Brittle c **Ductile** d Opaque





- 10 Which of the following questions helps in the classification of some elements to metals and nonmetals?
 (a) Is it solid? (b) Is it liquid? (c) Is it coloured? (d) **Is it brittle?**
- 11 What is the common property of both sodium and copper?
 (a) Colour (b) Density (c) Melting point (d) **Physical state**
- 12 If the anion which composes the acid HClO is called hypochlorite, then the acid is called
 (a) **hypochlorous acid** (b) hypochloric acid (c) perchloric acid (d) chlorous acid
- 13 What is the ion whose percentage in the solution increases when an acidic oxide dissolves in water?
 (a) **H⁺** (b) OH⁻ (c) Cl⁻ (d) Na⁺
- 14 On dissolving calcium oxide in water, and placing two litmus strips in the solution, the colour of one of them changes into
 (a) red (b) purple (c) blue (d) **yellow**
- 15 All the following from ions that form salts, except
 (a) **OH⁻** (b) Cl⁻ (c) NH₄⁺ (d) NO₃⁻
- 16 In a food chain that includes insect, fish, plant and swan. Which of these living organisms is considered as a predator and a prey at the same time?
 (a) The insect (b) **The fish** (c) The plant (d) The swan
- 17 Millions of nucleotides come together directly, forming
 (a) chromosome (b) chromatids (c) **genes** (d) histones
- 18 What are the two processes that occur at any temperature?
 (a) Melting and boiling (b) **Evaporation and condensation** (c) Melting and evaporation (d) Evaporation and boiling
- 19 The rock cycle is a model that illustrates
 (a) the unchanging of rocks (b) how magma is formed (c) how sediments are formed (d) **transformations of rocks**
- 20 The molecular formula of sulphuric acid is
 (a) H₂S (b) H₂SO₃ (c) H₃SO₃ (d) **H₂SO₄**





- 21 Human liver cells contain chromosomes
 (a) 20 (b) 23 (c) 32 (d) **46**
- 22 The centromere connects between
 (a) two chromosome
 s (b) **two chromatids** (c) two genes (d) two nucleotides
- 23 The carbonate group differs from the sulphite group in
 (a) charge (b) number of atoms (c) number of elements (d) **type of elements**
- 24 The nutritional relationship between bear and fish is considered a
 (a) mutualism (b) competition (c) commensalism (d) **predation**
- 25 What is the acid that its accumulation in the muscles causes the muscle cramps?
 (a) Hydrochloric acid (b) **Lactic acid** (c) Acetic acid (d) Chlorous acid
- 26 The molecular formula of sulphurous acid is
 (a) **H₂SO₃** (b) H₂S (c) H₂SO₄ (d) HSO₃
- 27 Among the basic gases
 (a) **CO₂** (b) HCL (c) NH₃ (d) CH₄
- 28 What is the possible PH meter reading of dilute sodium hydroxide solution ?
 (a) 2 (b) 5 (c) 7 (d) **12**
- 29 The nucleic acid DNA is wrapped around a type of protein known as
 (a) hormones (b) genes (c) histones (d) **chromosomes**
- 30 All the following physical quantities are measured in joules, except for
 (a) potential energy (b) **force** (c) work (d) kinetic energy
- 31 The conversion of gas into liquid represents the Process
 (a) boiling (b) **condensation** (c) evaporation (d) melting
- 32 What is the process that plants do in the water cycle?
 (a) photosynthesis (b) evaporation (c) **transpiration** (d) precipitation





- 33** The smallest building unit of DNA is
- a** the gene **b** the chromosome **c** the nucleotide **d** the histone
- 34** The spider weaving its web is considered
- a** a spontaneous mutation **b** an acquired trait **c** a genetic trait **d** an instinctive behaviour
- 35** The central point at which the two chromatids of the chromosome are connected is called
- a** the nucleotide **b** the centrosome **c** the gene **d** the centromere
- 36** Which of the following rocks is formed from the lithification of sediments?
- a** Quartzite **b** Pumice **c** Sandstone **d** Marble
- 37** Histones are
- a** enzymes **b** proteins **c** fats **d** carbohydrates
- 38** The genetic material that found in cells and determine hereditary traits of the living organism called
- a** PNA **b** NAD **c** AND **d** DNA
- 39** Which of the following rocks is used after being crushed to make casts
- a** Gabbro **b** Limestone **c** Sandstone **d** Pumice
- 40** Genes control the appearance of hereditary traits in the living organism by producing
- a** hormones **b** enzymes **c** chromosomes **d** vitamins

Question 04

Give one example of each of the following

- | | |
|--|--|
| 1 Positive atomic group | (NH_4^+) |
| 2 Gas that turns blue litmus paper into red | Carbon dioxide |
| 3 Gas turns red litmus paper into blue | Ammonia gas |
| 4 White salts | Sodium carbonate NaCO_3 |
| 5 Coloured salts | Copper Sulphate CuSO_4 (blue) |
| 6 Salts dissolve in water | Copper sulphate (CuSO_4) |
| 7 Salts that are sparingly soluble in water | Calcium Sulphate CaSO_4 |
| 8 A gas that has a neutral effect on litmus paper | Hydrogen |



- 9 Chemical indicator that measures pH
- 10 Non-oxygenated acid that forms an anion in a liquid state
- 11 Acid secreted by the stomach
- 12 Oxygenated acid carries three negative charges.
- 13 Acid secreted by muscles
- 14 Weathering and erosion processes together

Universal indicator

Hydrochloric Acid (HCl)

Hydrochloric Acid (HCl)

Phosphoric Acid (H₃PO₄)

Lactic Acid

The formation of the agricultural soil over millions of years in Egypt

Question 05

Cross out the odd word, then write the relation between the remaining words

- 1 Gold - Silver - Bromine – Mercury
bromine → (Metallic Elements)
- 2 Phosphorus - Bromine - Mercury – Sulphur
Mercury → (Non-Metallic Elements)
- 3 Graphite - Bromine - Phosphorus – Sulphur
Graphite → (Bad Electric Conductors)
- 4 Iodine - Sulfur - Carbon – Hydrogen
Hydrogen → (Solid Nonmetallic Elements)
- 5 Bronze - Chlorine - Copper – Tin
Chlorine → (Alloy and its components)
- 6 Universal indicator strips – litmus paper - voltameter – pH Meter
Voltameter → (the remaining words are chemical indicator)
- 7 N₂ – H₂O – H₂ – HCl
HCl → (the remaining has a neutral effect on litmus paper)
- 8 HNO₃ – H₂SO₄ – H₂O – HCl
H₂O → (are remaining words are acids)



- 9 Eggs – tomato – grapes – lemon
Egg → (the remaining words are acidic substances)
- 10 Sodium chloride - Nickel chloride - Silver Chloride - Copper Sulphate
Silver Chloride → (The remaining are salts dissolved in water)
- 11 H_2O - $NaHCO_3$ - $CuSO_4$ - $AgNO_3$
 H_2O → (The remaining are salts)
- 12 Sodium chloride - Calcium chloride - Magnesium chloride - Silver nitrate
Silver nitrate → (All remaining are salts contain chloride anion)

Question 06

Give reason for each of the following

- 1 Calcium ($_{20}Ca$) is a metal while Chlorine ($_{17}Cl$) is a non-metal.
Calcium Ca 20 2,8,8,2 is a metal because it has 2 electrons in the outermost energy level
Chlorine Cl17 2,8,8,7 is a non-metal because it has 7 electrons in its outermost energy level
- 2 Carbon is used in the manufacture of dry cells, although it is a non-metal.
Because Carbon is good conductor of electricity.
- 3 Acids turn blue litmus paper into red.
Because acids dissolve in water, forming hydrogen cation H^+
- 4 Alkalis turn red litmus paper into blue.
Because alkali dissolve water, forming hydroxide anion OH^-
- 5 Litmus paper doesn't affect distilled water.
Because distilled water is neutral solution (number of cations of H^+ equal to number of anions of OH^-)
- 6 Nitric acid turns blue litmus paper into red.
Due to the presence of hydrogen cations (H^+)



7 Calcium hydroxide turns red litmus paper into blue.

Due to the presence of hydroxide anions (OH^-)

8 The work done by the car is less than the work done by the truck, even though their speeds are equal.

Because the mass of truck is greater than the mass of car

9 The kinetic energy of the car decreases when the driver presses the car's brakes.

Because when the driver presses cars breaks, the speed of car will decrease and its kinetic energy decrease

10 Increasing the work required to stop a moving car at a high speed.

Because the car which moves at high speed has large kinetic energy.

11 Milk of Magnesia is used to treat stomach acidity.

To neutralize the gastric acidity, as it contains $\text{Mg}(\text{OH})_2$

12 Sodium chloride salt is an ionic compound.

Because it is produced from reaction between alkali (sodium cation) and acid (chloride anion)

13 Magnesium chloride salt consists of one magnesium cation and two chloride anions.

Because the total charge of molecules of any compound equal zero and the chloride anion carries one negative charge while the magnesium cation carries two positive charges

14 You can't drown in the Dead Sea water.

Due to the high percentage of the salt in water this leads to an increase in water density

15 Bronze alloy is used in the manufacture of medals instead of copper.

Because bronze alloy is harder than copper and resistant to rusting

16 The difference of the evaporation process from the boiling process

Because the evaporation process occurs at any temperature, while the boiling process occurs at a specific temperature



- 17** The relationship between bees and plant flowers is mutualism
 Because bees benefit by extracting nectar from flowers and plants benefit from transferring of their pollen grains on the bodies of bees from one flower to another, which promotes the floral reproduction
- 18** The electrical conductivity of acetic acid is less than the electric conductivity of hydrochloric acid
 Because acetic acid is a weak acid, while hydrochloric acid is a strong acid
- 19** The combustion (Burning) of fuel in a car is accompanied by a conversion of energy
 Because when fuel burns (a chemical reaction occurs), the potential energy stored in the chemical bonds of the fuel is converted into kinetic energy
- 20** The curling up of hedgehog when it feels danger is classified as instinctive behaviour
 Because it is a behavior that is transmitted from parents to offspring without learning
- 21** The sun and gravity together maintain the continuity of the water cycle in nature
 Because the heat of the sun causes water to move from the Earth to the atmospheric air during the evaporation process, while the gravitational force works to return the water back to the Earth again during the precipitation process
- 22** Not all salt solutions are neutral
 Because there are acidic salt solutions such as ammonium chloride solution and others that are alkaline such as sodium carbonate solution
- 23** The difference in PH values of ammonium chloride from sodium chloride solutions
 Because ammonium chloride solution is acidic (its PH value is less than 7), while sodium chloride solution is neutral (its PH value equals 7)
- 24** The kinetic energy of a truck is greater than the kinetic energy of a car when their speeds are equal
 Because the mass of the truck is greater than the mass of the car and kinetic energy increases with increasing the mass of the object



Hyenas are a scavengers

- 25** Because it feeds on the remains of dead organisms

The ladybug is used in biological control

- 26** Because it used to feed on aphid insects which are agricultural pests that harm vegetables and fruits

The water cycle in nature is a closed cycle

- 27** Because sun cause water evaporation into water vapour then condenses forming clouds then it precipitate and return to earth due to gravity.

The bow and arrow game is an example of energy conversion

- 28** Because when the arrow is drawn, it stores potential energy, and upon release, the stored potential energy is converted into kinetic energy

- 29** Fresh water consumption must be rationalized

To ensure sustainability of fresh water in future

- 30** Water drops form on the outer surface of a cup containing water and ice Cubes

Due to condensation of water vapor in air, forming water droplets on cup outer surface

- 31** The sun and gravity maintain the continuity of the water cycle

Sun causes water to move from earth to atmospheric air (evaporation)

Gravity causes water to return to earth (precipitation)

- 32** Sea and ocean water are desalinated

To face shortage of fresh water suitable for drinking, irrigation and agriculture

Question 07

What happens if

- 1** Knocking on a piece of graphite.

The piece of graphite crumbles easily, because graphite is a brittle nonmetal (not malleable)



- 2** Increasing the number of valence electrons in metal atoms according to the metallic bond.
The metallic bond strength increases
- 3** Dissolution of sulphur oxide in rain water
Formation of sulphuric acid H_2SO_4 which cause acid rain
- 4** Mixing molten gold with molten copper.
Alloy is formed
- 5** Lack of food sources in a balanced ecosystem
The competition happens between individuals of the same species which negatively impacts their growth or survival.
- 6** Food shortage for a group of hyenas
The competition happens between them which negatively impacts their growth or survival.
- 7** The absence of one of the living organisms present in a balanced ecosystem.
The other living organisms in the food chain or the food web are affected, it causes an imbalance for the ecosystem
- 8** Increase in the number of primary consumers
The number of producers decreases.
The number of secondary consumers increases
Decrease in the number of secondary consumers
- 9** The number of primary consumers increases.
The number of tertiary consumers decreases.
- 10** Placing potassium carbonate solution to water
The potassium carbonate dissolved in water and release potassium cation K^+ and carbonate anion CO_3^{-2}
- 11** The speed of a moving object increases into the double with constant mass according to its kinetic energy.
The kinetic energy increased to 4 times its value



- 12** Mass doubled and velocity halved according to kinetic energy
Kinetic energy decreased to half its value
- 13** Two cars (1) and (2) move at different speeds and have the same mass according to kinetic energy.
Kinetic energy has different value because they have different speed
- 14** The passage of electric current through sulphuric acid and acetic acid according to lighting of the lamp
Sulphuric acid is strong acid so the light of lamp will be strong, while acetic acid is weak acid so the light of the lamp will be weak
- 15** Placing two red and blue litmus paper in a tube of hydrogen gas.
The colour of litmus paper doesn't change
- 16** Placing two red and blue litmus paper in a tube containing chlorine gas.
It removes the color of wet litmus paper
- 17** Placing two red and blue litmus paper in a tube containing carbon dioxide gas.
It changes the colour of wet litmus paper will be red
- 18** Placing two red and blue litmus paper in a tube containing ammonia gas.
It changes the colour of wet litmus paper will be blue
- 19** Adding calcium hydroxide to acidic soil
Calcium hydroxide treats the acidic soil
- 20** Reaction of acids with alkalis
Formation of salt and water
- 21** A person who suffers from lactose intolerance eats milk chocolate
This person feels crampy and suffers from nausea and other painful symptoms



- 22** Sulphuric acid dissolves in water
The percentage of H^+ cation increases in the solution
 Placing a cup of water in a sunny place for several hours
- 23** **Evaporation of water into water vapor**
 Placing pieces of ice in a cup of water
- 24** **Forming of water droplet outside the cup**
 When the cloud temperature is below freezing point
- 25** **Snow precipitate instead rain**

Question 08

Write the chemical formula for the following compounds:

- | | |
|---|---------------------------------|
| 1 Weak acid | Nitrous acid (HNO_2) |
| 2 Strong acid | Hydrochloric acid (HCl) |
| 3 Strong alkali | Sodium Hydroxide ($NaOH$) |
| 4 Weak alkali | Ammonium hydroxide (NH_4OH) |
| 5 Metallic oxide | Magnesium oxide (MgO) |
| 6 Non-metallic oxide | Sulphur trioxide (SO_3) |
| 7 Hydro sulphuric acid | H_2S |
| 8 Hydrobromic acid | HBr |
| 9 Hydrochloric acid | HCl |
| 10 Sulphuric acid | H_2SO_4 |
| 11 Sulphurous acid | H_2SO_3 |
| 12 Nitric acid | HNO_3 |
| 13 Nitrous acid | HNO_2 |
| 14 Potassium hydroxide | KOH |
| 15 Atomic group consisting of three elements | HCO_3 |
| 16 Phosphoric acid | H_3PO_4 |
| 17 Ammonium hydroxide | NH_4OH |



Question 09

Write the names of the following chemical compounds and state their type:

- | | |
|--------------|---|
| ① H_2SO_4 | Sulphuric acid → (acid) |
| ② SO_3 | Sulphite group → (Atomic group) |
| ③ H_2CO_3 | Carbonic acid → (oxyacid) |
| ④ HCl | hydrochloric acid → (acid don't contain oxygen) |
| ⑤ $Mg(OH)_2$ | Magnesium hydroxide → alkaline |
| ⑥ H_2S | hydro sulphuric acid → acid don't contain oxygen. |
| ⑦ H_3PO_4 | Phosphoric acid → oxoacids |
| ⑧ N_2O | Nitrous oxide → (oxide) |
| ⑨ HNO_2 | Nitrous acid → (oxyacid) |
| ⑩ MgO | magnesium oxide → (basic oxide) |

Question 10

Answer the following questions

- How do you differentiate between Silver and Phosphorus in terms of Conductivity of electric current
Silver is good conductor of electricity -Phosphorus is a bad conductor of electricity
- What is the benefit of Stomach acid
Participate in Food digestion.
- What is the benefit of Lactic acid
it provides the muscle with oxygen, when oxygen is lacking.
- How to differentiate between Sulphurous acid and sulphuric acid in terms of molecular formula
Sulphurous acid → H_2SO_3
Sulphuric acid → H_2SO_4
- What is the benefit of Milk of Magnesia
To neutralize gastric acidity as it contains magnesium hydroxide (Magnesium, Oxygen and Hydrogen)



- 6** What is the benefit of Litmus paper
To differentiate between acids and alkali as acids turn litmus paper into red, while alkali turns litmus paper into blue
- 7** How do you differentiate between nitric acid and nitrous acid?
Nitric acid is strong acid – Nitrous acid is weak acid by measuring the Ph value by Ph meter device Nitric acid will have small Ph value.
- Nitrous acid bad conductor of electricity – nitric acid is good conductor of electricity
- 8** How to differentiate between (CO₂, O₂) gas
By wet litmus paper; CO₂ Changes it into red- O₂ doesn't change its colour
- 9** Mention the type of food relationship between the remora fish that sticks to the shark's body and gets its food remains without affecting it on the shark.
Commensalism
- 10** Mention the type of food relationship between the falcon that hunts mice.
Predation
- 11** Mention the type of food relationship between the trees in the forest are densely packed together, blocking light from the short trees.
Competition
- 12** Mention the type of food relationship between Spiders hunt insects
Predation
- 13** Write the names of the elements that consists the bronze alloy
Copper and tin
- 14** Mention one use for Calcium carbonate powder
Used in making the casts used for patients with bone fractures
- 15** Mention one importance for each of Bronze alloy
Used in jewelry



Write the mathematical relation which represents the mechanical energy of a moving object

16

$$ME = KE + PE$$

Write the low expressing the relation between Speed and Distance

17

$$v = \frac{d}{t}$$

Write the low expressing the relation between Speed and Kinetic energy

18

$$KE = \frac{1}{2}mv^2$$

What is the difference between Acquired traits and genetic traits

19

Acquired traits: Traits that are not inherited from parents to offspring but are acquired from the surrounding environment through learning or training, they are not transmitted from one generation to another

Genetic traits: Traits that are transmitted from parents to offspring without learning, and are inherited from one generation to the next

What is the difference between Hydrogen chloride and hydrochloric acid

20

Hydrogen chloride: HCl compound in the gaseous state

Hydrochloric acid: HCl compound in the form of a solution (acid)

Mention one importance for each of Genes

21

Responsible for expressing the hereditary traits in living organisms

State the importance of Water

22

Drinking – agricultural – sanitation - hygiene

State the importance of the sun in the water cycle in nature

23

The sun causes water to evaporate from earth to atmosphere air

State the importance of Gravity in the water cycle in nature

24

It causes water to return back to earth through precipitation process



Question 11

Problems

- 1 Calculate the speed of a body that covered a distance of 50 km in two hours.
 $d = 50 \text{ km}$ $t = 2 \text{ h}$ $v = ?$

$$v = \frac{d}{t} = \frac{50}{2} = 25 \text{ km/h}$$
- 2 Calculate the time required to cover a distance of 300 meters if the body is moving at a speed of 20 m/s
 $d = 300 \text{ m}$ $v = 20 \text{ m/s}$ $t = ?$

$$t = \frac{d}{v} = \frac{300}{20} = 15 \text{ sec}$$
- 3 A person pushed an object with a force of (40 Newtons) and it moved in a straight line a distance of (10 meters). Calculate the amount of work done.
 $F = 40 \text{ N}$ $S = 10 \text{ m}$ $W = ?$

$$W = F \times S = 40 \times 10 = 400 \text{ J}$$
- 4 Calculate the potential energy of a body with a mass of (15 kg) at a height of (150 cm), knowing that the acceleration due to gravity is (10 Newton/kg).
 $PE = ?$ $m = 15 \text{ kg}$ $g = 10 \text{ N/kg}$ $h = \frac{150}{100} = 1.5 \text{ m}$

$$PE = m \times g \times h$$

$$= 15 \times 10 \times 1.5 = 225 \text{ J}$$
- 5 Calculate the kinetic energy of a ball with a mass of (20 kg) moving at a speed of (4 m/s).
 $m = 20 \text{ kg}$, $v = 4 \text{ m/s}$

$$KE = \frac{1}{2} m \times v^2 = \frac{1}{2} \times 20 \times 4^2 = 160 \text{ j}$$
- 6 Calculate the kinetic energy of a body weighing 20 Newton moving at a speed of 6 m/s.
 $w = 20 \text{ N}$, $v = 6 \text{ m/s}$, $g = 10$

$$w = m \times g$$
 $20 = m \times 10$ $m = 2 \text{ kg}$

$$KE = \frac{1}{2} m \times v^2 = \frac{1}{2} \times 2 \times 6 \times 6 = 36 \text{ j}$$



- 7 Calculate the kinetic energy of a body with a mass of (500 g) that covers a distance of 20 meters in (4 seconds).

$$m = 500 \text{ g} = \frac{500}{1000} = 0.5 \text{ kg} \quad , \quad d = 20 \text{ m} \quad , \quad t = 4 \text{ s}$$

$$v = \frac{d}{t} = \frac{20}{4} = 5 \text{ m/s}$$

$$KE = \frac{1}{2} m \times v^2 = \frac{1}{2} \times 0.5 \times 5 \times 5 = 6.25 \text{ j}$$

- 8 A body moves at a speed of 20 km/h. Calculate the distance travelled after three hours?

$$v = 20 \text{ km/h} \quad t = 3 \text{ hour} \quad d = ?$$

$$d = v \times t = 20 \times 3 = 60 \text{ km}$$

- 9 A body does work of (50 joules) to move a bicycle a distance of 10 meter Calculate the amount of force required to do the work.

$$W = 50 \text{ J} \quad s = 10 \text{ m} \quad F = ?$$

$$F = \frac{W}{s} = \frac{50}{10} = 5 \text{ N}$$

- 10 A body with a potential energy of (240 joules) at a height of (12 meters) Calculate the weight of the body.

$$PE = 240 \text{ J} \quad h = 12 \text{ m} \quad W = ?$$

$$W = \frac{PE}{h} = \frac{240}{12} = 20 \text{ N}$$

Calculate the height of an object of mass is 6 kg above the ground when its potential energy is 180 J, knowing that the gravitational field intensity is 10 N/kg

$$h = \frac{PE}{g \times m} = \frac{180}{6 \times 10} = 3 \text{ m}$$

انتهت الأسئلة مع أطيب الامنيات بالنجاح والتوفيق

